USER MANUAL

Part Number: MIC0302036

ULD 920

SENSABLE SENSORS

October 2003
Revision: 03

I N D E X

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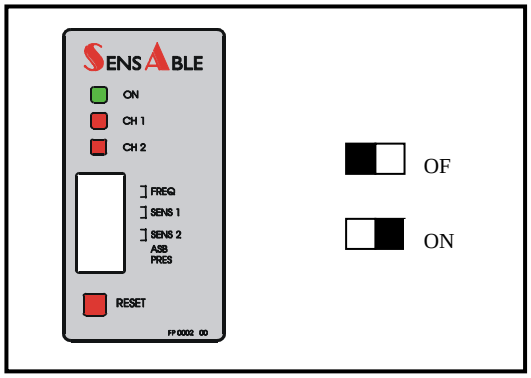
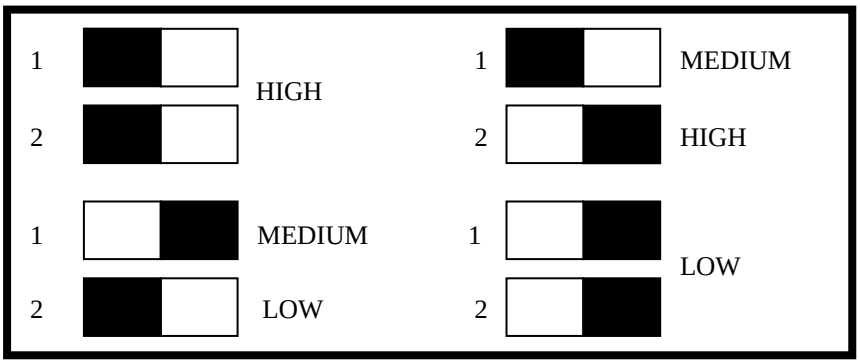
DETECTOR COMMISSIONING



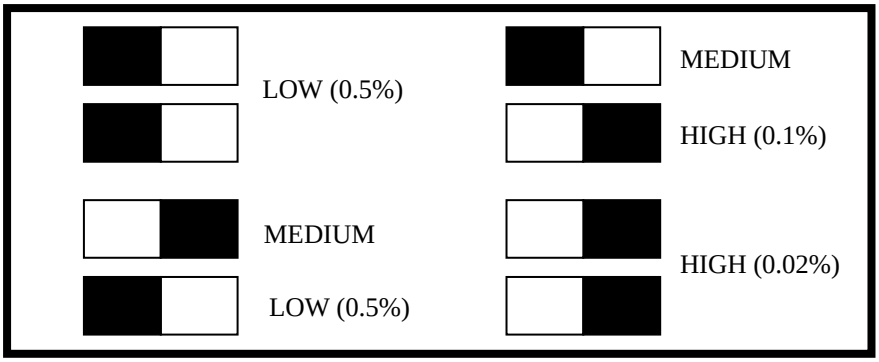
FREQUENCY (SWITCHES 1 & 2)



Frequency setting is provided to eliminate crosstalk (interface) between adjacent detectors. Crosstalk is indicated by random outputs, chattering relays and possible detector lock-up.

SENSITIVITY

Channel 1 - switches 3 & 4
Channel 2 - switches 5 & 6



Sensitivity settings have been optimised to reliability produce an output at the required change on inductance, or to ignore certain vehicle types if so required.
Typical inductance changes on a 2m x 1m (3 turns) loop:-

VEHICLE	ΔL/L
BICYCLE	0.02 %
MOTORCYCLE	0.12 %
ARTICULATED TRUCK	0.4 %
SEDAN CAR	>1.0 %

AUTOMATIC SENSITIVITY BOOST (ASB) (SWITCH 7)

When ASB is selected (ON) the level of sensitivity is increased to HIGH after detection has occurred. This ensures that Detection does not drop away under high-bed vehicles.

PRESENCE (PRES) (SWITCH 8)

ON - PERMANENT PRESENCE
OFF - LIMITED PRESENCE (1 hr for 3 % ΔL/L)

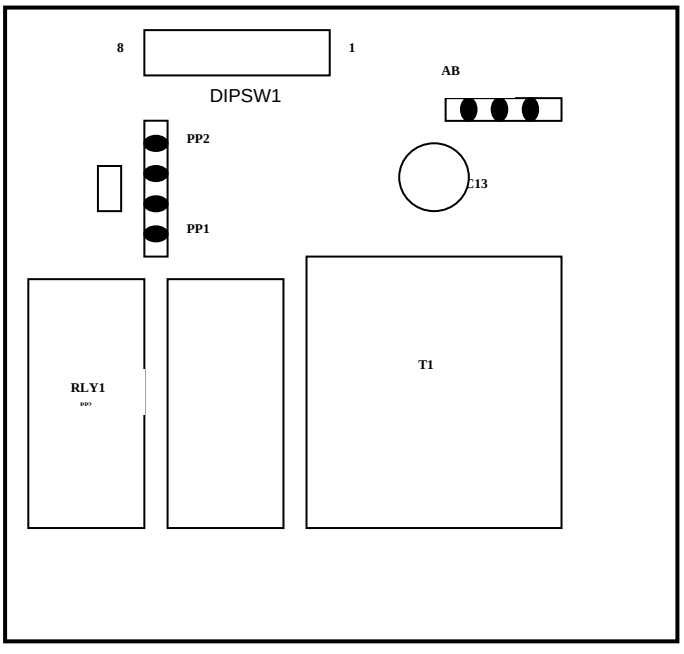
INTERNAL LINKS

AB LOGIC

No AB Logic . . .

AB Presence . . .

AB Pulse . . .



PULSE / PRESENCE

PP 1 – channel 1
PP 2 – channel 2

Presence .
.
Pulse .
.

INDICATIONS

GREEN LED - POWER ON

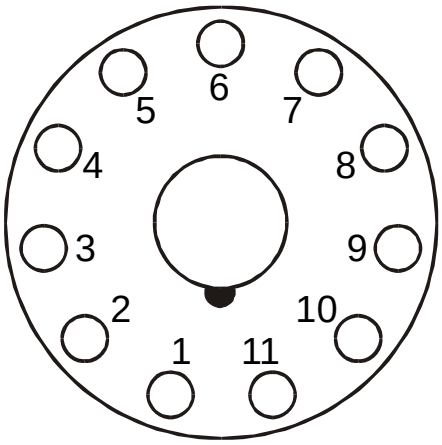
RED LED - CHANNEL OUTPUT

After initial power-up or after a re-tune, the detector automatically tunes to the inductive loop. After 0.2 seconds the **RED LED** will flash out the frequency of operation (50 kHz = 5 flashes)
If a fault condition exists on the loop (open circuit / short circuit) the **RED LED** will **FLASH** at a fast rate. If a re-tune occurs the **RED LED** will **FLASH**, but at a slower rate.

RESET PUSH BUTTON

The Detector must be **RESET** whenever switch settings are altered.
Only a reset will clear the above fault indication conditions, providing the loop fault has been cleared.

PINOUTS



PIN	DESCRIPTION
1	LIVE (DC+)
2	NEUTRAL (0V)
3	LOOP CHANNEL 1
4	LOOP CHANNEL 1
5	LOOP CHANNEL 2
6	LOOP CHANNEL 2
7	CHANNEL 2 N / O
8	CHANNEL 2 COMMON
9	EARTH
10	CHANNEL 1 N/O
11	CHANNEL 1 COMMON

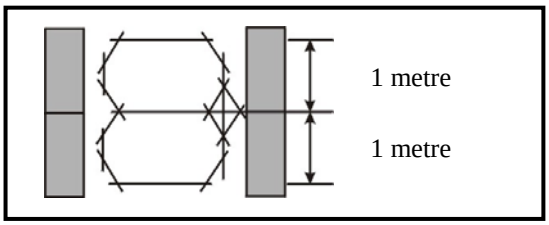
LOOP INSTALLATIONS

CABLE SPECIFICATION (LOOP + FEEDER)

1.5mm² cross sectional area, multi-strand cable.
Insulation material – PVC or Silicone.
Current Rating – 15A.

FEEDER FOR LONG RUNS
Foil screened cable recommended (Earth at equipment end only)
Waterproof cable junction box (Pratley or similar) will be required.
Loop feeder cables should always be twisted from the point of exiting the loop, to the termination of cables on the equipment. Minimum of 20 twists per metre should be used.

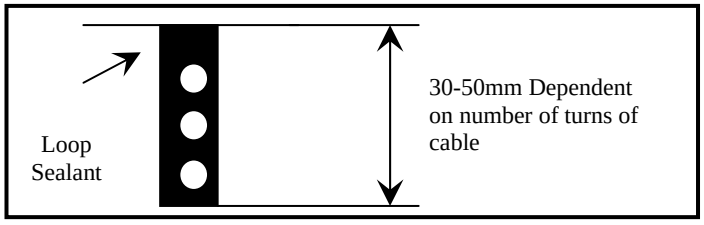
LOOP GEOMETRY



****NOTE:-** That with two adjacent loops connected to a dual channel detector, it is possible for these loops to share a common slot, if so required.
As the channels are multi-plexed, no crosstalk (interference) will occur.

****NOTE:-** Avoid large loops, sensitivity will be affected

SLOT DEPTH



****NOTE:-** Clean & dry slots prior to inserting cable.

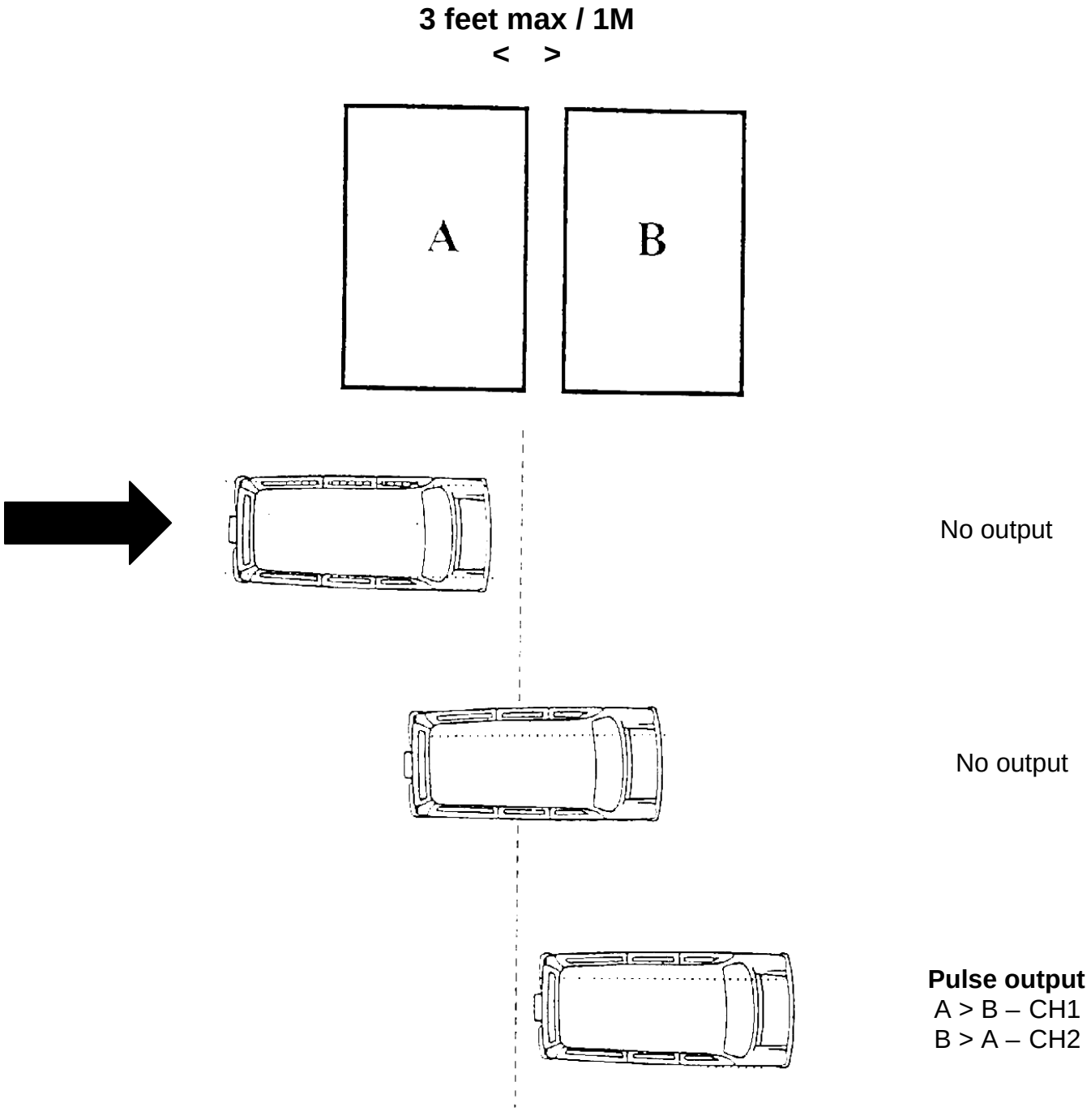
DETERMINING NUMBER OF TURNS OF CABLE

PERIMETER	NO. OF TURNS
3 – 6 M	4
6 – 10 M	3
10 – 30 M	2

****NOTE:-** Add 2 additional turns to compensate for the effects of sub-surface re-inforcing on sensitivity.

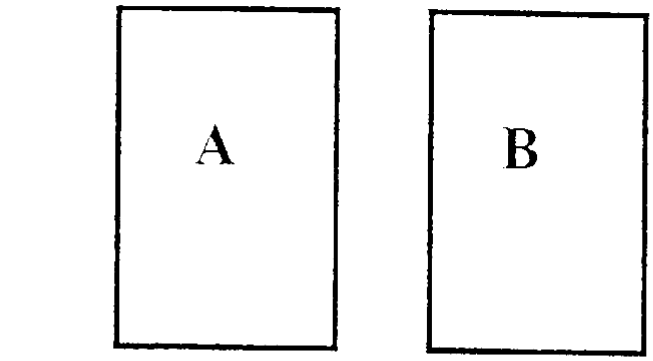
DETECTOR DIRECTION LOGIC OPERATION

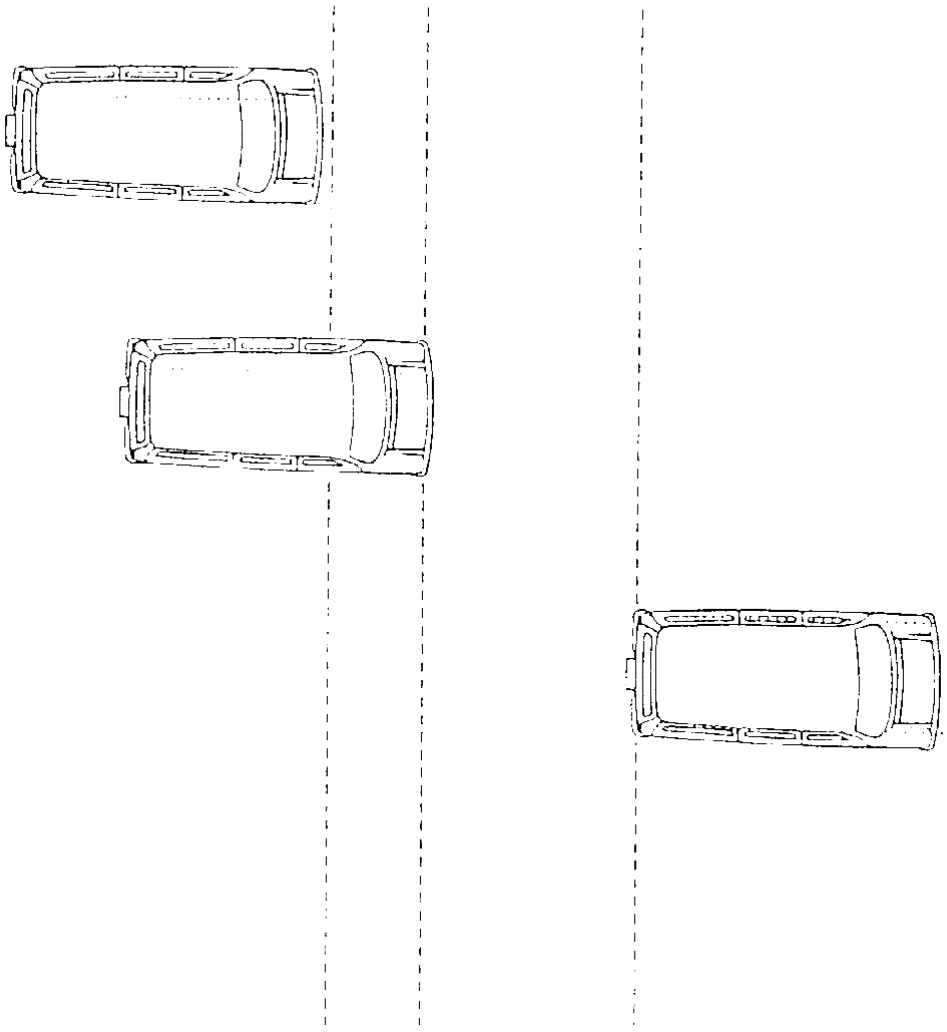
PULSE MODE



PRESENCE MODE

3 feet max / 1M
< >





No output

Presence output begins

Presence output ends
A > B – CH1
B > A – CH2

ULD 920 TECHNICAL SPECIFICATIONS

Tuning	**Automatic**
Inductive Range	**20 – 1500uH**
Sensitivity	**Four steps adjustable** **Maximum 0.02% ΔL/L** **Minimum 0.5% ΔL/L**
Sensitivity Boost	**Selectable on :** **Med High** **Med Low** **Low**
Frequency	**Four steps adjustable** **Range: 20 – 140kHz**
Response Time	**App. 100ms (Turn on / Turn off)**
Output Configuration	**Selectable on PCB** **2 Output relays** **Relay 1 – Presence / Pulse / AB** **Relay 2 – Presence / Pulse / BA**
Direction Logic	**Selectable – Presence / Pulse**
Presence Time	**Selectable – Permanent or Limited** **(1hr for 3% ΔL/L)**
Pulse Output Duration	**150ms** **(250 ms factory option)**
Indications	**3 LEDs** **Green – Power** **Red – Output per channel**
Reset push buttons	**Flush mount on front panel**
Protection	**Loop Isolation** **Transformer/zener diode/GDT** **Power/Relays – MOV**

Power	**ULD 921 230V AC ±15** **ULD 922 115V AC ±15** **ULD 923 12/24V AC/DC ±15**
Relay Rating	**5A @ 230V AC**
Temperature range	**-40°C to +80°C**
Storage Temperature	**-40°C to +85°C**
Humidity	**Up to 95% RH**
Dimensions	**75mm x 40mm x 76mm (H x W x D)**